



U.S. Environmental Protection Agency
Region 8
Technical and Management Services

Laboratory Services Program

Certificate of Analysis

Ref: 8TMS-L

MEMORANDUM

Date: 12/15/16

Subject: Analytical Results--- **Bonita Peak_Soil_NOV_2016_A119 / A-119**

From: Don Goodrich; EPA Region 8 Analytical Chemistry WAM

To: Rebecca Thomas
Superfund
1595 Wynkoop Street

Received Sample Set(s), [Work Order : Date Received]:

[C161105 : 10/10/2016]

Attached are the analytical results for the samples received from the Bonita Peak_Soil_NOV_2016_A119 sampling event, according to TDF A-119. All analyses were performed within their method specified holding times unless otherwise noted in the following narrative.

These samples were prepared, analyzed, and verified by the Environmental Services Assistance Team Laboratory (ESAT) according to the requirements of the Technical Direction Form (TDF).

Note: The laboratory herewith transmits this deliverable to the program/project partner for determination of "final data usability" which may include data validation and data quality assessment per and in accordance with EPA QA/G-8, *Guidance on Environmental Data Verification and Data Validation*, November 2002, EPA/240/R-02/004. Laboratory data qualifiers are applied based on the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, October 2004, referred to as "NFGI".

Laboratory policy is to dispose of any remaining sample 60 days after data analysis packages are delivered to EPA. If you would like the laboratory to retain the samples for a period longer than 60 days, please contact Don Goodrich within the 60 day period at (303) 312-6687.

Case Narrative**C161105**

Quality Assessment: Unless indicated by exception, the QA/QC associated with this sample set produced data within the TDF-specified criteria.

Holding Times: All samples were analyzed within their method-specified technical holding time(s). All samples analyzed for TM_Mercury 7473 were analyzed past hold times and J flagged.

Sample Receipt Form: None

1. Initial and Continuing calibration blanks (ICBs and CCBs).
Exceptions: None.
2. Preparation (PB) / Method blanks (MB)
Exceptions: None.
3. Interference Checks (ICSA / ICSAB) for ICP-MS and ICP-OE analyses only.
Exceptions: None.
4. Initial and Continuing calibration verification analyses (ICVs, SCVs and CCVs).
Exceptions: None.
5. Laboratory Control Sample (LCS) or second source analysis or SRM.
Exceptions: None.
6. Laboratory Fortified blank (LFB) / Blank spike (BS), same source as used for the matrix spikes.
PBS performed with analyses/methods requiring preparation or digestion prior to analysis.
Exceptions: None.
7. Contract Reporting Detection Limit Standard, labeled as CRA, CRDL or CRL.
Exceptions: None.
8. Laboratory Duplicate (DUP). "Source" identifies field sample duplicated in the laboratory. If either the "source" or the duplicate result is <5X the reporting limit, the %D limit of 20% does not apply.
Exceptions: None.
9. Laboratory Matrix Spike (MS) and spike duplicate (MSD). "Source" defines original field sample fortified prior to analysis. Percent recovery (%R) limits do not apply when sample concentration(s) exceed the corresponding analyte spike level by a factor of 4 or greater.
Exceptions: In ICP-MS batches 1612053 and 1612054, antimony recovered low in the matrix spikes.
No qualifiers were assigned.
10. Serial Dilution sample analysis (SRD). "Source" is parent field sample diluted 1:5 in the laboratory.
Performed for ICP-OE and ICP-MS metals analyses. Percent difference (%D) limits do not apply when analyte concentration(s) are below 50x the source sample's MDL (or 10x its PQL).
Exceptions: In ICP-MS sequence 1612080, nickel recovered high in the SRD1. As a result, the source sample was qualified "J" as estimated for nickel.
11. Internal standards, criteria specified for ICP-MS analyses only, monitored at the instrument.
Exceptions: None.
12. Any calibration using more than two-points produced a correlation coefficient equal to or greater than 0.995.
Exceptions: None.

Acronyms and Definitions:

ESAT	Environmental Services Assistance Team
J	Data Estimated qualifier (also applied to all data less than PQL, greater than or equal to MDL)
MDL	Method Detection Limit
PQL	Practical Quantitation Limit, also known as reporting limit.
RPD	Relative Percent Difference (difference divided by the mean)
%D	Percent difference, serial dilution criteria unit, difference divided by the original result.
%R	Percent recovery, analyzed (less sample contribution) divided by true value
<	Analyte NOT DETECTED at or above the Method Detection Limit (MDL)
mg/L	Parts per million (milligrams per liter). Solids equivalent = mg/Kg.
ug/L	Parts per billion (micrograms per liter). Solids equivalent = ug/Kg.
NR	No Recovery (matrix spike) - Often seen for calcium/magnesium when their concentration exceeds the spike level by > 4x.
NFGI	USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004
RE	Sample Re-analysis. Usually seen on raw data and sequences for required sample dilutions due to over-range analytes.
U	Analyte not detected at or above MDL qualifier
D	Diluted value qualifier.

Method(s) Summary:

As defined in the Technical Direction Form (TDF), some or all of the methods listed below were used for the determination of the reported target analytes.

From EPA's *Methods for the Determination of Metals in Environmental Samples*, Supplement I, May 1994, dissolved, total, and/or total recoverable metals were determined by:

- Method 200.7 / 6010B using a PE Optima ICP -OE (ICP).
- Method 200.8 / 6020 using a Perkin -Elmer Elan 6000 ICP -MS.
- Method 200.2 for total recoverable metals (only) digestion.
- Method 245.1 using a Perkin -Elmer FIMS CVAA (aqueous mercury only).

From *Standard Methods for the Examination of Water and Wastewater*, 18th Edition, 1992, Method 2340B was used for the calculated hardness determination. Hardness is reported as mg (milligram) equivalent CaCO₃ per liter (L) determined as follows:

$$\text{Calculated hardness} = 2.497 * (\text{Calcium, mg/L}) + 4.118 * (\text{Magnesium, mg/L}).$$

From EPA's *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, SW -846,

- Method 3015A was used for microwave assisted total metals digestion.
- Method 7473 was used for mercury in solids .

From EPA's *Determination of Inorganic Anions by Ion Chromatography*, Revision 2.1, 1993, Method 300.0 was used to determine the anions.

From EPA's *Methods for Chemical Analysis of Water and Wastes*, March 1983:

- Method 310.1 was followed for the alkalinity determination.
- Method 160.1 was followed for gravimetric total dissolved solids (TDS) determination.
- Method 160.2 was used for gravimetric total suspended solids (TSS) determination.
- Method 415.3 was used for total organic carbon (TOC) determination using either an Apollo 9000 or Phoenix 8000 Non-Dispersive IR (NDIR) system. Also known as dissolved organic carbon (DOC) when performed on the dissolved sample fraction.

The quality control procedures listed in the TDF request were utilized by ESAT to verify accuracy of the results and to evaluate any matrix interferences.

Project Name: Bonita Peak_Soil_NOV_2016_A119

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Project Name: Bonita Peak_Soil_NOV_2016_A119

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TDF #:

A-119

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	A34	Date / Time Sampled:	09/27/16 10:00	Workorder:	C161105				
EPA Tag No.:	8-A	Matrix:	Soil	Lab Number:	C161105-01 A				
Method									
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	6820		ug/kg dry wt	503	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Arsenic	28500		ug/kg dry wt	503	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Cadmium	20200		ug/kg dry wt	101	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Chromium	9270		ug/kg dry wt	1010	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Copper	612000		ug/kg dry wt	503	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Lead	5550000		ug/kg dry wt	101	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Nickel	13200	J	ug/kg dry wt	503	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Selenium	1070	J	ug/kg dry wt	1010	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Silver	20200		ug/kg dry wt	503	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Thallium	< 2010	U	ug/kg dry wt	1010	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Aluminum	9520		mg/kg dry wt	20.1	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Beryllium	< 5.03	U	mg/kg dry wt	1.01	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Calcium	2460		mg/kg dry wt	101	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Iron	42100		mg/kg dry wt	101	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Magnesium	4510		mg/kg dry wt	101	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Manganese	5330		mg/kg dry wt	2.01	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Silica (SiO2)	5860		mg/kg dry wt	252	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Strontium	28.9		mg/kg dry wt	2.01	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Zinc	5370		mg/kg dry wt	10.1	10	12/15/2016	SV	1612053

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Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	A41A	Date / Time Sampled:	09/29/16 08:30	Workorder:	C161105				
EPA Tag No.:	8-A	Matrix:	Soil	Lab Number:	C161105-02 A				
Method									
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	516	J	ug/kg dry wt	498	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Arsenic	14100		ug/kg dry wt	498	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Cadmium	2370		ug/kg dry wt	99.6	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Chromium	3500		ug/kg dry wt	996	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Copper	83200		ug/kg dry wt	498	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Lead	372000		ug/kg dry wt	99.6	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Nickel	6080		ug/kg dry wt	498	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Selenium	< 1990	U	ug/kg dry wt	996	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Silver	2350		ug/kg dry wt	498	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Thallium	1510	J	ug/kg dry wt	996	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Aluminum	8700		mg/kg dry wt	19.9	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Beryllium	< 4.98	U	mg/kg dry wt	0.996	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Calcium	3110		mg/kg dry wt	99.6	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Iron	27600		mg/kg dry wt	99.6	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Magnesium	5040		mg/kg dry wt	99.6	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Manganese	2360		mg/kg dry wt	1.99	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Silica (SiO2)	4800		mg/kg dry wt	249	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Strontium	40.7		mg/kg dry wt	1.99	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Zinc	529		mg/kg dry wt	9.96	10	12/15/2016	SV	1612053

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Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	A68	Date / Time Sampled:	09/27/16 10:25	Workorder:	C161105				
EPA Tag No.:	8-A	Matrix:	Soil	Lab Number:	C161105-03 A				
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	914	J	ug/kg dry wt	502	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Arsenic	19200		ug/kg dry wt	502	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Cadmium	7180		ug/kg dry wt	100	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Chromium	3890		ug/kg dry wt	1000	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Copper	204000		ug/kg dry wt	502	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Lead	1110000		ug/kg dry wt	100	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Nickel	6260		ug/kg dry wt	502	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Selenium	< 2010	U	ug/kg dry wt	1000	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Silver	3520		ug/kg dry wt	502	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Thallium	1940	J	ug/kg dry wt	1000	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Aluminum	8680		mg/kg dry wt	20.1	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Beryllium	1.04	J	mg/kg dry wt	1.00	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Calcium	2710		mg/kg dry wt	100	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Iron	27200		mg/kg dry wt	100	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Magnesium	5070		mg/kg dry wt	100	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Manganese	6870		mg/kg dry wt	2.01	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Silica (SiO2)	5260		mg/kg dry wt	251	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Strontium	29.2		mg/kg dry wt	2.01	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Zinc	1620		mg/kg dry wt	10.0	10	12/15/2016	SV	1612053

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Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	CC18B	Date / Time Sampled:	09/29/16 14:15	Workorder:	C161105				
EPA Tag No.:	8-A	Matrix:	Soil	Lab Number:	C161105-04 A				
Method									
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	1520		ug/kg dry wt	498	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Arsenic	35700		ug/kg dry wt	498	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Cadmium	2150		ug/kg dry wt	99.6	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Chromium	5910		ug/kg dry wt	996	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Copper	141000		ug/kg dry wt	498	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Lead	907000		ug/kg dry wt	99.6	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Nickel	3790		ug/kg dry wt	498	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Selenium	1570	J	ug/kg dry wt	996	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Silver	4660		ug/kg dry wt	498	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Thallium	< 1990	U	ug/kg dry wt	996	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Aluminum	7640		mg/kg dry wt	19.9	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Beryllium	< 4.98	U	mg/kg dry wt	0.996	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Calcium	851		mg/kg dry wt	99.6	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Iron	64000		mg/kg dry wt	99.6	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Magnesium	4300		mg/kg dry wt	99.6	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Manganese	1030		mg/kg dry wt	1.99	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Silica (SiO2)	4730		mg/kg dry wt	249	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Strontium	95.4		mg/kg dry wt	1.99	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Zinc	655		mg/kg dry wt	9.96	10	12/15/2016	SV	1612053

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Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	CC21D	Date / Time Sampled:	09/28/16 17:10	Workorder:	C161105				
EPA Tag No.:	8-A	Matrix:	Soil	Lab Number:	C161105-05 A				
Method									
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	1760		ug/kg dry wt	497	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Arsenic	24000		ug/kg dry wt	497	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Cadmium	217		ug/kg dry wt	99.5	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Chromium	3110		ug/kg dry wt	995	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Copper	23800		ug/kg dry wt	497	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Lead	345000		ug/kg dry wt	99.5	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Nickel	870	J	ug/kg dry wt	497	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Selenium	3530		ug/kg dry wt	995	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Silver	1840		ug/kg dry wt	497	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Thallium	< 1990	U	ug/kg dry wt	995	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Aluminum	3140		mg/kg dry wt	19.9	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Beryllium	< 4.97	U	mg/kg dry wt	0.995	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Calcium	122	J	mg/kg dry wt	99.5	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Iron	30600		mg/kg dry wt	99.5	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Magnesium	1780		mg/kg dry wt	99.5	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Manganese	180		mg/kg dry wt	1.99	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Silica (SiO ₂)	2800		mg/kg dry wt	249	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Strontium	57.1		mg/kg dry wt	1.99	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Zinc	77.9		mg/kg dry wt	9.95	10	12/15/2016	SV	1612053

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Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	CC24C	Date / Time Sampled:	09/29/16 12:00	Workorder:	C161105				
EPA Tag No.:	8-A	Matrix:	Soil	Lab Number:	C161105-06 A				
Method									
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	1050		ug/kg dry wt	505	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Arsenic	48800		ug/kg dry wt	505	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Cadmium	113	J	ug/kg dry wt	101	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Chromium	3250		ug/kg dry wt	1010	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Copper	40000		ug/kg dry wt	505	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Lead	220000		ug/kg dry wt	101	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Nickel	1470		ug/kg dry wt	505	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Selenium	1370	J	ug/kg dry wt	1010	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Silver	1330		ug/kg dry wt	505	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Thallium	< 2020	U	ug/kg dry wt	1010	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Aluminum	4740		mg/kg dry wt	20.2	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Beryllium	< 5.05	U	mg/kg dry wt	1.01	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Calcium	233	J	mg/kg dry wt	101	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Iron	39500		mg/kg dry wt	101	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Magnesium	1060		mg/kg dry wt	101	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Manganese	166		mg/kg dry wt	2.02	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Silica (SiO2)	3550		mg/kg dry wt	253	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Strontium	152		mg/kg dry wt	2.02	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Zinc	39.4		mg/kg dry wt	10.1	10	12/15/2016	SV	1612053

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Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	CC25	Date / Time Sampled:	09/29/16 09:15	Workorder:	C161105				
EPA Tag No.:	8-A	Matrix:	Soil	Lab Number:	C161105-07 A				
Method									
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	4730		ug/kg dry wt	492	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Arsenic	51400		ug/kg dry wt	492	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Cadmium	267		ug/kg dry wt	98.3	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Chromium	2460		ug/kg dry wt	983	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Copper	26500		ug/kg dry wt	492	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Lead	594000		ug/kg dry wt	98.3	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Nickel	960	J	ug/kg dry wt	492	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Selenium	3100		ug/kg dry wt	983	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Silver	4620		ug/kg dry wt	492	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Thallium	< 1970	U	ug/kg dry wt	983	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Aluminum	2790		mg/kg dry wt	19.7	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Beryllium	< 4.92	U	mg/kg dry wt	0.983	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Calcium	189	J	mg/kg dry wt	98.3	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Iron	29400		mg/kg dry wt	98.3	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Magnesium	825		mg/kg dry wt	98.3	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Manganese	126		mg/kg dry wt	1.97	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Silica (SiO2)	2850		mg/kg dry wt	246	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Strontium	74.6		mg/kg dry wt	1.97	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Zinc	72.1		mg/kg dry wt	9.83	10	12/15/2016	SV	1612053

Project Name: Bonita Peak_Soil_NOV_2016_A119

Certificate of Analysis

TDF #:

A-119

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	CC26	Date / Time Sampled:	09/28/16 16:20	Workorder:	C161105				
EPA Tag No.:	8-A	Matrix:	Soil	Lab Number:	C161105-08 A				
Method									
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	3320		ug/kg dry wt	497	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Arsenic	83800		ug/kg dry wt	497	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Cadmium	2160		ug/kg dry wt	99.3	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Chromium	2880		ug/kg dry wt	993	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Copper	53400		ug/kg dry wt	497	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Lead	437000		ug/kg dry wt	99.3	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Nickel	1590		ug/kg dry wt	497	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Selenium	2180		ug/kg dry wt	993	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Silver	3660		ug/kg dry wt	497	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Thallium	< 1990	U	ug/kg dry wt	993	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Aluminum	4050		mg/kg dry wt	19.9	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Beryllium	< 4.97	U	mg/kg dry wt	0.993	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Calcium	415		mg/kg dry wt	99.3	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Iron	38300		mg/kg dry wt	99.3	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Magnesium	1700		mg/kg dry wt	99.3	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Manganese	197		mg/kg dry wt	1.99	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Silica (SiO2)	3280		mg/kg dry wt	248	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Strontium	50.3		mg/kg dry wt	1.99	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Zinc	570		mg/kg dry wt	9.93	10	12/15/2016	SV	1612053

Project Name: Bonita Peak_Soil_NOV_2016_A119

Certificate of Analysis

TDF #:

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Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	CC38	Date / Time Sampled:	09/28/16 08:48	Workorder:	C161105				
EPA Tag No.:	8-A	Matrix:	Soil	Lab Number:	C161105-09 A				
Method									
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	563	J	ug/kg dry wt	504	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Arsenic	28800		ug/kg dry wt	504	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Cadmium	1270		ug/kg dry wt	101	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Chromium	3680		ug/kg dry wt	1010	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Copper	54500		ug/kg dry wt	504	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Lead	598000		ug/kg dry wt	101	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Nickel	3200		ug/kg dry wt	504	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Selenium	< 2010	U	ug/kg dry wt	1010	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Silver	2560		ug/kg dry wt	504	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Thallium	< 2010	U	ug/kg dry wt	1010	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Aluminum	7010		mg/kg dry wt	20.1	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Beryllium	< 5.04	U	mg/kg dry wt	1.01	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Calcium	1050		mg/kg dry wt	101	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Iron	34200		mg/kg dry wt	101	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Magnesium	3220		mg/kg dry wt	101	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Manganese	565		mg/kg dry wt	2.01	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Silica (SiO2)	4800		mg/kg dry wt	252	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Strontium	38.8		mg/kg dry wt	2.01	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Zinc	392		mg/kg dry wt	10.1	10	12/15/2016	SV	1612053

Project Name: Bonita Peak_Soil_NOV_2016_A119

Certificate of Analysis

TDF #:

A-119

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	CC38D	Date / Time Sampled:	09/28/16 10:40	Workorder:	C161105				
EPA Tag No.:	8-A	Matrix:	Soil	Lab Number:	C161105-10 A				
Method									
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	543	J	ug/kg dry wt	499	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Arsenic	47600		ug/kg dry wt	499	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Cadmium	2320		ug/kg dry wt	99.8	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Chromium	2670		ug/kg dry wt	998	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Copper	68600		ug/kg dry wt	499	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Lead	648000		ug/kg dry wt	99.8	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Nickel	3410		ug/kg dry wt	499	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Selenium	< 2000	U	ug/kg dry wt	998	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Silver	2390		ug/kg dry wt	499	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Thallium	< 2000	U	ug/kg dry wt	998	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Aluminum	5720		mg/kg dry wt	20.0	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Beryllium	< 4.99	U	mg/kg dry wt	0.998	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Calcium	1020		mg/kg dry wt	99.8	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Iron	32200		mg/kg dry wt	99.8	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Magnesium	1980		mg/kg dry wt	99.8	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Manganese	995		mg/kg dry wt	2.00	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Silica (SiO2)	4020		mg/kg dry wt	249	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Strontium	35.2		mg/kg dry wt	2.00	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Zinc	643		mg/kg dry wt	9.98	10	12/15/2016	SV	1612053

Project Name: Bonita Peak_Soil_NOV_2016_A119

Certificate of Analysis

TDF #:

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Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	EG2	Date / Time Sampled:	09/29/16 16:00	Workorder:	C161105				
EPA Tag No.:	8-A	Matrix:	Soil	Lab Number:	C161105-11 A				
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	< 997	U	ug/kg dry wt	498	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Arsenic	18400		ug/kg dry wt	498	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Cadmium	886		ug/kg dry wt	99.7	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Chromium	5250		ug/kg dry wt	997	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Copper	68300		ug/kg dry wt	498	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Lead	152000		ug/kg dry wt	99.7	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Nickel	7530		ug/kg dry wt	498	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Selenium	< 1990	U	ug/kg dry wt	997	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Silver	798	J	ug/kg dry wt	498	10	12/15/2016	SV	1612053
EPA 200.2 / 200.8	Thallium	< 1990	U	ug/kg dry wt	997	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Aluminum	16100		mg/kg dry wt	19.9	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Beryllium	< 4.98	U	mg/kg dry wt	0.997	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Calcium	2310		mg/kg dry wt	99.7	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Iron	37500		mg/kg dry wt	99.7	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Magnesium	7800		mg/kg dry wt	99.7	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Manganese	1650		mg/kg dry wt	1.99	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Silica (SiO ₂)	7150		mg/kg dry wt	249	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Strontium	15.1		mg/kg dry wt	1.99	10	12/15/2016	SV	1612053
EPA 200.2/200.7	Zinc	333		mg/kg dry wt	9.97	10	12/15/2016	SV	1612053

Project Name: Bonita Peak_Soil_NOV_2016_A119

Certificate of Analysis

TDF #:

A-119

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	EG2A	Date / Time Sampled:	09/29/16 15:30	Workorder:	C161105				
EPA Tag No.:	8-A	Matrix:	Soil	Lab Number:	C161105-12 A				
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	< 996	U	ug/kg dry wt	498	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Arsenic	25000		ug/kg dry wt	498	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Cadmium	1610		ug/kg dry wt	99.6	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Chromium	7090		ug/kg dry wt	996	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Copper	87400		ug/kg dry wt	498	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Lead	406000		ug/kg dry wt	99.6	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Nickel	6840		ug/kg dry wt	498	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Selenium	< 1990	U	ug/kg dry wt	996	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Silver	1510		ug/kg dry wt	498	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Thallium	< 1990	U	ug/kg dry wt	996	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Aluminum	13900		mg/kg dry wt	19.9	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Beryllium	< 4.98	U	mg/kg dry wt	0.996	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Calcium	1490		mg/kg dry wt	99.6	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Iron	35000		mg/kg dry wt	99.6	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Magnesium	5470		mg/kg dry wt	99.6	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Manganese	2710		mg/kg dry wt	1.99	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Silica (SiO ₂)	7140		mg/kg dry wt	249	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Strontium	12.1		mg/kg dry wt	1.99	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Zinc	380		mg/kg dry wt	9.96	10	12/15/2016	SV	1612054

Project Name: Bonita Peak_Soil_NOV_2016_A119

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TDF #:

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Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	EG3A	Date / Time Sampled:	09/29/16 13:00	Workorder:	C161105				
EPA Tag No.:	8-A	Matrix:	Soil	Lab Number:	C161105-13 A				
Method									
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	571	J	ug/kg dry wt	502	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Arsenic	21200		ug/kg dry wt	502	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Cadmium	854		ug/kg dry wt	100	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Chromium	4830		ug/kg dry wt	1000	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Copper	117000		ug/kg dry wt	502	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Lead	735000		ug/kg dry wt	100	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Nickel	9360		ug/kg dry wt	502	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Selenium	< 2010	U	ug/kg dry wt	1000	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Silver	5000		ug/kg dry wt	502	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Thallium	1640	J	ug/kg dry wt	1000	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Aluminum	14200		mg/kg dry wt	20.1	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Beryllium	< 5.02	U	mg/kg dry wt	1.00	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Calcium	2490		mg/kg dry wt	100	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Iron	53200		mg/kg dry wt	100	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Magnesium	7940		mg/kg dry wt	100	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Manganese	1880		mg/kg dry wt	2.01	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Silica (SiO2)	6630		mg/kg dry wt	251	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Strontium	12.1		mg/kg dry wt	2.01	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Zinc	291		mg/kg dry wt	10.0	10	12/15/2016	SV	1612054

Project Name: Bonita Peak_Soil_NOV_2016_A119

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TDF #:

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Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	EG5	Date / Time Sampled:	09/28/16 16:15	Workorder:	C161105				
EPA Tag No.:	8-A	Matrix:	Soil	Lab Number:	C161105-14 A				
Method									
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	581	J	ug/kg dry wt	501	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Arsenic	39700		ug/kg dry wt	501	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Cadmium	6410		ug/kg dry wt	100	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Chromium	6160		ug/kg dry wt	1000	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Copper	222000		ug/kg dry wt	501	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Lead	842000		ug/kg dry wt	100	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Nickel	9000		ug/kg dry wt	501	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Selenium	< 2000	U	ug/kg dry wt	1000	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Silver	6740		ug/kg dry wt	501	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Thallium	< 2000	U	ug/kg dry wt	1000	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Aluminum	12100		mg/kg dry wt	20.0	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Beryllium	1.03	J	mg/kg dry wt	1.00	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Calcium	2100		mg/kg dry wt	100	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Iron	50400		mg/kg dry wt	100	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Magnesium	6200		mg/kg dry wt	100	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Manganese	4770		mg/kg dry wt	2.00	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Silica (SiO2)	6500		mg/kg dry wt	251	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Strontium	34.5		mg/kg dry wt	2.00	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Zinc	1140		mg/kg dry wt	10.0	10	12/15/2016	SV	1612054

Project Name: Bonita Peak_Soil_NOV_2016_A119

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TDF #:

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Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	M12	Date / Time Sampled:	09/29/16 16:35	Workorder:	C161105				
EPA Tag No.:	8-A	Matrix:	Soil	Lab Number:	C161105-15 A				
Method									
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	< 999	U	ug/kg dry wt	500	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Arsenic	16500		ug/kg dry wt	500	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Cadmium	1760		ug/kg dry wt	99.9	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Chromium	8700		ug/kg dry wt	999	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Copper	53500		ug/kg dry wt	500	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Lead	225000		ug/kg dry wt	99.9	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Nickel	10500		ug/kg dry wt	500	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Selenium	< 2000	U	ug/kg dry wt	999	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Silver	569	J	ug/kg dry wt	500	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Thallium	< 2000	U	ug/kg dry wt	999	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Aluminum	9800		mg/kg dry wt	20.0	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Beryllium	< 5.00	U	mg/kg dry wt	0.999	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Calcium	3170		mg/kg dry wt	99.9	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Iron	36900		mg/kg dry wt	99.9	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Magnesium	4760		mg/kg dry wt	99.9	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Manganese	3060		mg/kg dry wt	2.00	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Silica (SiO ₂)	6750		mg/kg dry wt	250	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Strontium	37.7		mg/kg dry wt	2.00	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Zinc	372		mg/kg dry wt	9.99	10	12/15/2016	SV	1612054

Project Name: Bonita Peak_Soil_NOV_2016_A119

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TDF #:

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Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	M14	Date / Time Sampled:	09/28/16 16:30		Workorder:	C161105			
EPA Tag No.:	8-A	Matrix:	Soil		Lab Number:	C161105-16 A			
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	< 1000	U	ug/kg dry wt	501	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Arsenic	12100		ug/kg dry wt	501	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Cadmium	< 201	U	ug/kg dry wt	100	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Chromium	1980	J	ug/kg dry wt	1000	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Copper	21300		ug/kg dry wt	501	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Lead	102000		ug/kg dry wt	100	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Nickel	1270		ug/kg dry wt	501	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Selenium	1210	J	ug/kg dry wt	1000	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Silver	585	J	ug/kg dry wt	501	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Thallium	< 2010	U	ug/kg dry wt	1000	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Aluminum	5950		mg/kg dry wt	20.1	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Beryllium	< 5.01	U	mg/kg dry wt	1.00	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Calcium	265		mg/kg dry wt	100	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Iron	32900		mg/kg dry wt	100	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Magnesium	2430		mg/kg dry wt	100	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Manganese	182		mg/kg dry wt	2.01	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Silica (SiO ₂)	5190		mg/kg dry wt	251	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Strontium	60.2		mg/kg dry wt	2.01	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Zinc	55.5		mg/kg dry wt	10.0	10	12/15/2016	SV	1612054

Project Name: Bonita Peak_Soil_NOV_2016_A119

Certificate of Analysis

TDF #:

A-119

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	M24D	Date / Time Sampled:	09/27/16 17:30	Workorder:	C161105				
EPA Tag No.:	8-A	Matrix:	Soil	Lab Number:	C161105-17 A				
Method									
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	511	J	ug/kg dry wt	499	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Arsenic	9490		ug/kg dry wt	499	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Cadmium	44300		ug/kg dry wt	99.7	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Chromium	6170		ug/kg dry wt	997	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Copper	347000		ug/kg dry wt	499	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Lead	466000		ug/kg dry wt	99.7	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Nickel	16000		ug/kg dry wt	499	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Selenium	< 1990	U	ug/kg dry wt	997	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Silver	2750		ug/kg dry wt	499	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Thallium	< 1990	U	ug/kg dry wt	997	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Aluminum	13500		mg/kg dry wt	19.9	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Beryllium	1.22	J	mg/kg dry wt	0.997	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Calcium	3700		mg/kg dry wt	99.7	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Iron	24900		mg/kg dry wt	99.7	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Magnesium	3510		mg/kg dry wt	99.7	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Manganese	8670		mg/kg dry wt	1.99	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Silica (SiO2)	7870		mg/kg dry wt	249	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Strontium	34.5		mg/kg dry wt	1.99	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Zinc	5260		mg/kg dry wt	9.97	10	12/15/2016	SV	1612054

Project Name: Bonita Peak_Soil_NOV_2016_A119

Certificate of Analysis

TDF #:

A-119

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	M25	Date / Time Sampled:	09/27/16 17:00	Workorder:	C161105				
EPA Tag No.:	8-A	Matrix:	Soil	Lab Number:	C161105-18 A				
Method									
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	< 1010	U	ug/kg dry wt	503	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Arsenic	4570		ug/kg dry wt	503	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Cadmium	1140		ug/kg dry wt	101	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Chromium	6620		ug/kg dry wt	1010	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Copper	14900		ug/kg dry wt	503	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Lead	60700		ug/kg dry wt	101	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Nickel	5280		ug/kg dry wt	503	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Selenium	< 2010	U	ug/kg dry wt	1010	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Silver	< 1010	U	ug/kg dry wt	503	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Thallium	< 2010	U	ug/kg dry wt	1010	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Aluminum	9470		mg/kg dry wt	20.1	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Beryllium	< 5.03	U	mg/kg dry wt	1.01	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Calcium	4330		mg/kg dry wt	101	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Iron	13200		mg/kg dry wt	101	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Magnesium	3060		mg/kg dry wt	101	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Manganese	773		mg/kg dry wt	2.01	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Silica (SiO2)	8230		mg/kg dry wt	251	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Strontium	29.5		mg/kg dry wt	2.01	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Zinc	149		mg/kg dry wt	10.1	10	12/15/2016	SV	1612054

Project Name: Bonita Peak_Soil_NOV_2016_A119

Certificate of Analysis

TDF #:

A-119

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	M26B	Date / Time Sampled:	09/28/16 09:35	Workorder:	C161105				
EPA Tag No.:	8-A	Matrix:	Soil	Lab Number:	C161105-19 A				
Method									
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	< 1000	U	ug/kg dry wt	500	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Arsenic	11300		ug/kg dry wt	500	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Cadmium	1650		ug/kg dry wt	100	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Chromium	3190		ug/kg dry wt	1000	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Copper	23000		ug/kg dry wt	500	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Lead	175000		ug/kg dry wt	100	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Nickel	7560		ug/kg dry wt	500	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Selenium	< 2000	U	ug/kg dry wt	1000	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Silver	768	J	ug/kg dry wt	500	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Thallium	< 2000	U	ug/kg dry wt	1000	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Aluminum	5880		mg/kg dry wt	20.0	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Beryllium	< 5.00	U	mg/kg dry wt	1.00	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Calcium	4230		mg/kg dry wt	100	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Iron	12100		mg/kg dry wt	100	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Magnesium	4000		mg/kg dry wt	100	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Manganese	1120		mg/kg dry wt	2.00	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Silica (SiO2)	5280		mg/kg dry wt	250	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Strontium	20.5		mg/kg dry wt	2.00	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Zinc	294		mg/kg dry wt	10.0	10	12/15/2016	SV	1612054

Project Name: Bonita Peak_Soil_NOV_2016_A119

Certificate of Analysis

TDF #:

A-119

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	M27	Date / Time Sampled:	09/27/16 15:00	Workorder:	C161105				
EPA Tag No.:	8-A	Matrix:	Soil	Lab Number:	C161105-20 A				
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	< 991	U	ug/kg dry wt	495	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Arsenic	26000		ug/kg dry wt	495	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Cadmium	949		ug/kg dry wt	99.1	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Chromium	2860		ug/kg dry wt	991	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Copper	52800		ug/kg dry wt	495	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Lead	276000		ug/kg dry wt	99.1	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Nickel	2080		ug/kg dry wt	495	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Selenium	1150	J	ug/kg dry wt	991	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Silver	815	J	ug/kg dry wt	495	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Thallium	< 1980	U	ug/kg dry wt	991	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Aluminum	7340		mg/kg dry wt	19.8	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Beryllium	< 4.95	U	mg/kg dry wt	0.991	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Calcium	1050		mg/kg dry wt	99.1	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Iron	43000		mg/kg dry wt	99.1	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Magnesium	2910		mg/kg dry wt	99.1	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Manganese	856		mg/kg dry wt	1.98	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Silica (SiO2)	4610		mg/kg dry wt	248	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Strontium	40.4		mg/kg dry wt	1.98	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Zinc	310		mg/kg dry wt	9.91	10	12/15/2016	SV	1612054

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	PWMLP1	Date / Time Sampled:	09/28/16 14:15	Workorder:	C161105				
EPA Tag No.:	8-A	Matrix:	Soil	Lab Number:	C161105-21 A				
Method									
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	15800		ug/kg dry wt	491	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Arsenic	445000		ug/kg dry wt	491	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Cadmium	15700		ug/kg dry wt	98.1	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Chromium	4330		ug/kg dry wt	981	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Copper	722000		ug/kg dry wt	491	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Lead	6330000		ug/kg dry wt	98.1	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Nickel	3600		ug/kg dry wt	491	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Selenium	2400		ug/kg dry wt	981	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Silver	18600		ug/kg dry wt	491	10	12/15/2016	SV	1612054
EPA 200.2 / 200.8	Thallium	< 1960	U	ug/kg dry wt	981	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Aluminum	3110		mg/kg dry wt	19.6	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Beryllium	< 4.91	U	mg/kg dry wt	0.981	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Calcium	8780		mg/kg dry wt	98.1	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Iron	50400		mg/kg dry wt	98.1	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Magnesium	2090		mg/kg dry wt	98.1	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Manganese	5190		mg/kg dry wt	1.96	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Silica (SiO2)	3950		mg/kg dry wt	245	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Strontium	21.0		mg/kg dry wt	1.96	10	12/15/2016	SV	1612054
EPA 200.2/200.7	Zinc	4380		mg/kg dry wt	9.81	10	12/15/2016	SV	1612054

"J" Qualifier indicates an estimated value

Project Name: Bonita Peak_Soil_NOV_2016_A119

Certificate of Analysis

TDF #:

A-119

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: A34 EPA Tag No.: 8-A	Date / Time Sampled: 09/27/16 10:00 Matrix: Soil	Workorder: C161105 Lab Number: C161105-01 A
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Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
7473	Mercury	4.441	E	mg/kg dry wt	0.010	1	11/08/2016	KJB	1611048

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: A41A EPA Tag No.: 8-A	Date / Time Sampled: 09/29/16 08:30 Matrix: Soil	Workorder: C161105 Lab Number: C161105-02 A
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Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
7473	Mercury	0.030	J	mg/kg dry wt	0.010	1	11/08/2016	KJB	1611048

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: A68 EPA Tag No.: 8-A	Date / Time Sampled: 09/27/16 10:25 Matrix: Soil	Workorder: C161105 Lab Number: C161105-03 A
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Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
7473	Mercury	0.064	J	mg/kg dry wt	0.010	1	11/08/2016	KJB	1611048

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: CC18B EPA Tag No.: 8-A	Date / Time Sampled: 09/29/16 14:15 Matrix: Soil	Workorder: C161105 Lab Number: C161105-04 A
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Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
7473	Mercury	0.085	J	mg/kg dry wt	0.010	1	11/08/2016	KJB	1611048

Project Name: Bonita Peak_Soil_NOV_2016_A119

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TDF #:

A-119

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: CC21D EPA Tag No.: 8-A	Date / Time Sampled: 09/28/16 17:10 Matrix: Soil	Workorder: C161105 Lab Number: C161105-05 A
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Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
7473	Mercury	0.047	J	mg/kg dry wt	0.010	1	11/08/2016	KJB	1611048

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: CC24C EPA Tag No.: 8-A	Date / Time Sampled: 09/29/16 12:00 Matrix: Soil	Workorder: C161105 Lab Number: C161105-06 A
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Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
7473	Mercury	0.087	J	mg/kg dry wt	0.010	1	11/08/2016	KJB	1611048

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: CC25 EPA Tag No.: 8-A	Date / Time Sampled: 09/29/16 09:15 Matrix: Soil	Workorder: C161105 Lab Number: C161105-07 A
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Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
7473	Mercury	0.120	J	mg/kg dry wt	0.010	1	11/08/2016	KJB	1611048

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: CC26 EPA Tag No.: 8-A	Date / Time Sampled: 09/28/16 16:20 Matrix: Soil	Workorder: C161105 Lab Number: C161105-08 A
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Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
7473	Mercury	0.164	J	mg/kg dry wt	0.010	1	11/08/2016	KJB	1611048

Project Name: Bonita Peak_Soil_NOV_2016_A119

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TDF #:

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Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: CC38 EPA Tag No.: 8-A	Date / Time Sampled: 09/28/16 08:48 Matrix: Soil	Workorder: C161105 Lab Number: C161105-09 A
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Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
7473	Mercury	0.077	J	mg/kg dry wt	0.010	1	11/08/2016	KJB	1611048

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: CC38D EPA Tag No.: 8-A	Date / Time Sampled: 09/28/16 10:40 Matrix: Soil	Workorder: C161105 Lab Number: C161105-10 A
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Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
7473	Mercury	0.096	J	mg/kg dry wt	0.010	1	11/08/2016	KJB	1611048

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: EG2 EPA Tag No.: 8-A	Date / Time Sampled: 09/29/16 16:00 Matrix: Soil	Workorder: C161105 Lab Number: C161105-11 A
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Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
7473	Mercury	0.061	J	mg/kg dry wt	0.010	1	11/08/2016	KJB	1611048

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: EG2A EPA Tag No.: 8-A	Date / Time Sampled: 09/29/16 15:30 Matrix: Soil	Workorder: C161105 Lab Number: C161105-12 A
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Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
7473	Mercury	0.044	J	mg/kg dry wt	0.010	1	11/08/2016	KJB	1611048

Project Name: Bonita Peak_Soil_NOV_2016_A119

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TDF #:

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Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: EG3A EPA Tag No.: 8-A	Date / Time Sampled: 09/29/16 13:00 Matrix: Soil	Workorder: C161105 Lab Number: C161105-13 A
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Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
7473	Mercury	0.129	J	mg/kg dry wt	0.010	1	11/08/2016	KJB	1611048

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: EG5 EPA Tag No.: 8-A	Date / Time Sampled: 09/28/16 16:15 Matrix: Soil	Workorder: C161105 Lab Number: C161105-14 A
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Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
7473	Mercury	0.087	J	mg/kg dry wt	0.010	1	11/08/2016	KJB	1611048

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: M12 EPA Tag No.: 8-A	Date / Time Sampled: 09/29/16 16:35 Matrix: Soil	Workorder: C161105 Lab Number: C161105-15 A
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Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
7473	Mercury	0.077	J	mg/kg dry wt	0.010	1	11/08/2016	KJB	1611048

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: M14 EPA Tag No.: 8-A	Date / Time Sampled: 09/28/16 16:30 Matrix: Soil	Workorder: C161105 Lab Number: C161105-16 A
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Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
7473	Mercury	0.017	J J	mg/kg dry wt	0.010	1	11/08/2016	KJB	1611048

Project Name: Bonita Peak_Soil_NOV_2016_A119

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TDF #:

A-119

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: M24D EPA Tag No.: 8-A	Date / Time Sampled: 09/27/16 17:30 Matrix: Soil	Workorder: C161105 Lab Number: C161105-17 A
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Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
7473	Mercury	0.077	J	mg/kg dry wt	0.012	1	11/08/2016	KJB	1611048

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: M25 EPA Tag No.: 8-A	Date / Time Sampled: 09/27/16 17:00 Matrix: Soil	Workorder: C161105 Lab Number: C161105-18 A
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Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
7473	Mercury	0.044	J	mg/kg dry wt	0.014	1	11/08/2016	KJB	1611048

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: M26B EPA Tag No.: 8-A	Date / Time Sampled: 09/28/16 09:35 Matrix: Soil	Workorder: C161105 Lab Number: C161105-19 A
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Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
7473	Mercury	0.030	J	mg/kg dry wt	0.010	1	11/08/2016	KJB	1611048

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: M27 EPA Tag No.: 8-A	Date / Time Sampled: 09/27/16 15:00 Matrix: Soil	Workorder: C161105 Lab Number: C161105-20 A
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Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
7473	Mercury	0.094	J	mg/kg dry wt	0.010	1	11/08/2016	KJB	1611048

Project Name: Bonita Peak_Soil_NOV_2016_A119

Certificate of Analysis

TDF #:

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Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: PWMLP1	Date / Time Sampled: 09/28/16 14:15	Workorder: C161105
EPA Tag No.: 8-A	Matrix: Soil	Lab Number: C161105-21 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
7473	Mercury	0.508	J	mg/kg dry wt	0.010	1	11/08/2016	KJB	1611048

"J" Qualifier indicates an estimated value

Project Name: Bonita Peak_Soil_NOV_2016_A119

Certificate of Analysis

TDF #: A-119

Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
ICPMS-PE DRC-II									
Batch 1612053 - 200.2 - TR Metals		<i>Solid (dry wt basis)</i>							ICPMS-PE DRC-II
Method Blank (1612053-BLK2)		Dilution Factor: 5							Prepared: 12/09/16 Analyzed: 12/15/16
Chromium	< 5.0	10.0	ug/kg dry wt						
Nickel	< 2.5	5.0	"						
Copper	< 2.5	5.0	"						
Arsenic	< 2.5	10.0	"						
Selenium	< 5.0	10.0	"						
Silver	< 2.5	5.0	"						
Cadmium	< 0.5	1.0	"						
Antimony	< 2.5	5.0	"						
Thallium	< 5.0	10.0	"						
Lead	< 0.5	1.0	"						
Duplicate (1612053-DUP2)		Dilution Factor: 1							Prepared: 12/09/16 Analyzed: 12/15/16
Chromium	9425	2000	ug/kg dry wt	9271		2	35		
Nickel	14200	1000	"	13190		7	35		
Copper	626500	1000	"	612400		2	35		
Arsenic	29260	2000	"	28450		3	35		
Selenium	1309	2000	"	1066		21	35		
Silver	18160	1000	"	20150		10	35		
Cadmium	19680	200	"	20240		3	35		
Antimony	6867	1000	"	6816		0.7	35		
Thallium	< 1000	2000	"	< 1000			35		
Lead	5619000	200	"	5548000		1	35		
Matrix Spike (1612053-MS2)		Dilution Factor: 1							Prepared: 12/09/16 Analyzed: 12/15/16
Chromium	44270	2000	ug/kg dry wt	40100	9271	87	70-130		
Nickel	60170	1000	"	50100	13190	94	70-130		
Copper	632100	1000	"	30100	612400	65	70-130		
Arsenic	96400	2000	"	80200	28450	85	70-130		
Selenium	175500	2000	"	200000	1066	87	70-130		
Silver	26480	1000	"	7520	20150	84	70-130		
Cadmium	36950	200	"	20000	20240	83	70-130		
Antimony	40170	1000	"	80200	6816	42	70-130		
Thallium	186000	2000	"	200000	< 1000	93	70-130		
Lead	5606000	200	"	100000	5548000	58	70-130		

Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 1612053 - 200.2 - TR Metals		<i>Solid (dry wt basis)</i>						ICPMS-PE DRC-II	
Matrix Spike (1612053-MS4)		Dilution Factor: 1		Source: C161105-02			Prepared: 12/09/16 Analyzed: 12/15/16		
Chromium	37520	1980	ug/kg dry wt	39600	3505	86	70-130		
Nickel	49640	990	"	49500	6080	88	70-130		
Copper	106700	990	"	29700	83200	79	70-130		
Arsenic	82470	1980	"	79200	14100	86	70-130		
Selenium	183200	1980	"	198000	< 990	93	70-130		
Silver	10220	990	"	7420	2353	106	70-130		
Cadmium	21750	198	"	19800	2372	98	70-130		
Antimony	42730	990	"	79200	515.9	53	70-130		
Thallium	187900	1980	"	198000	1506	94	70-130		
Lead	492600	198	"	99000	371800	122	70-130		
Reference (1612053-SRM2)		Dilution Factor: 2		Prepared: 12/09/16 Analyzed: 12/15/16					
Chromium	92400	7820	ug/kg dry wt	96500		96	80-120		
Nickel	54560	3910	"	56800		96	76.5-123.4		
Copper	6054000	3910	"	6680000		91	80-120		
Arsenic	837400	7820	"	930000		90	65-134		
Selenium	36860	7820	"	37000		100	48-152		
Silver	18660	3910	"	20900		89	64-136		
Cadmium	41350	782	"	41600		99	77-123		
Antimony	228300	3910	"	213000		107	61-139		
Thallium	32990	7820	"	38100		87	64.5-135		
Lead	212100	782	"	224000		95	75-125		
Batch 1612054 - 200.2 - TR Metals		<i>Solid (dry wt basis)</i>						ICPMS-PE DRC-II	
Method Blank (1612054-BLK2)		Dilution Factor: 5		Prepared: 12/09/16 Analyzed: 12/15/16					
Chromium	< 500	1000	ug/kg dry wt						
Nickel	< 250	500	"						
Copper	< 250	500	"						
Arsenic	< 250	1000	"						
Selenium	< 500	1000	"						
Silver	< 250	500	"						
Cadmium	< 50.0	100	"						
Antimony	< 250	500	"						
Thallium	< 500	1000	"						
Lead	< 50.0	100	"						

Project Name: Bonita Peak_Soil_NOV_2016_A119

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TDF #: A-119

Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 1612054 - 200.2 - TR Metals		<i>Solid (dry wt basis)</i>							ICPMS-PE DRC-II
Duplicate (1612054-DUP2)		Dilution Factor: 1	Source: C161105-12			Prepared: 12/09/16 Analyzed: 12/15/16			
Chromium	7214	1990	ug/kg dry wt		7086		2	35	
Nickel	7089	997	"		6838		4	35	
Copper	88020	997	"		87390		0.7	35	
Arsenic	25600	1990	"		25000		2	35	
Selenium	< 997	1990	"		< 997			35	
Silver	1495	997	"		1506		0.7	35	
Cadmium	1663	199	"		1606		4	35	
Antimony	< 499	997	"		< 499			35	
Thallium	< 997	1990	"		< 997			35	
Lead	395300	199	"		405800		3	35	
Matrix Spike (1612054-MS2)		Dilution Factor: 1	Source: C161105-12			Prepared: 12/09/16 Analyzed: 12/15/16			
Chromium	42050	1990	ug/kg dry wt	39700	7086	88	70-130		
Nickel	51530	993	"	49700	6838	90	70-130		
Copper	115400	993	"	29800	87390	94	70-130		
Arsenic	91170	1990	"	79400	25000	83	70-130		
Selenium	169600	1990	"	199000	< 993	85	70-130		
Silver	8616	993	"	7450	1506	95	70-130		
Cadmium	20970	199	"	19900	1606	98	70-130		
Antimony	20710	993	"	79400	< 497	26	70-130		
Thallium	183300	1990	"	199000	< 993	92	70-130		
Lead	503600	199	"	99300	405800	99	70-130		
Reference (1612054-SRM2)		Dilution Factor: 2				Prepared: 12/09/16 Analyzed: 12/15/16			
Chromium	91680	7810	ug/kg dry wt	96500		95	80-120		
Nickel	49320	3910	"	56800		87	76.5-123.4		
Copper	6033000	3910	"	6680000		90	80-120		
Arsenic	802700	7810	"	930000		86	65-134		
Selenium	35050	7810	"	37000		95	48-152		
Silver	20740	3910	"	20900		99	64-136		
Cadmium	41550	781	"	41600		100	77-123		
Antimony	215100	3910	"	213000		101	61-139		
Thallium	33370	7810	"	38100		88	64.5-135		
Lead	202100	781	"	224000		90	75-125		

Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 1612080 - 1612054		<i>Solid (dry wt basis)</i>						ICPMS-PE DRC-II	
Serial Dilution (1612080-SRD1)		Dilution Factor: 5	Source: C161105-01			Prepared: 12/09/16 Analyzed: 12/15/16			
Chromium	9306	10100	ug/kg dry wt		9271		0.4	10	
Nickel	15570	5030	"		13190		17	10	
Copper	649300	5030	"		612400		6	10	
Arsenic	31440	10100	"		28450		10	10	
Selenium	< 5030	10100	"		1066			10	
Silver	21290	5030	"		20150		6	10	
Cadmium	20840	1010	"		20240		3	10	
Antimony	7287	5030	"		6816		7	10	
Thallium	< 5030	10100	"		< 1,006.00			10	
Lead	5427000	1010	"		5548000		2	10	
Serial Dilution (1612080-SRD2)		Dilution Factor: 5	Source: C161105-12			Prepared: 12/09/16 Analyzed: 12/15/16			
Chromium	7217	9960	ug/kg dry wt		7086		2	10	
Nickel	7179	4980	"		6838		5	10	
Copper	93500	4980	"		87390		7	10	
Arsenic	25040	9960	"		25000		0.2	10	
Selenium	< 4980	9960	"		< 996.00			10	
Silver	< 2490	4980	"		1506			10	
Cadmium	1629	996	"		1606		1	10	
Antimony	< 2490	4980	"		< 498.00			10	
Thallium	< 4980	9960	"		< 996.00			10	
Lead	389600	996	"		405800		4	10	
ICPOE - PE Optima									
Batch 1612053 - 200.2 - TR Metals		<i>Solid (dry wt basis)</i>						ICPOE - PE Optima	
Method Blank (1612053-BLK1)		Dilution Factor: 1				Prepared: 12/09/16 Analyzed: 12/15/16			
Aluminum	< 0.0200	0.0500	mg/kg dry wt						
Beryllium	< 0.00100	0.00500	"						
Calcium	< 0.100	0.250	"						
Iron	< 0.100	0.250	"						
Magnesium	< 0.100	0.250	"						
Manganese	< 0.00200	0.00500	"						
Silica (SiO2)	< 0.250	1.00	"						
Zinc	< 0.0100	0.0200	"						
Strontium	< 0.00200	0.0100	"						

Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 1612053 - 200.2 - TR Metals		<i>Solid (dry wt basis)</i>							ICPOE - PE Optima
Duplicate (1612053-DUP1)		Dilution Factor: 1	Source: C161105-01			Prepared: 12/09/16 Analyzed: 12/15/16			
Aluminum	9774.1	50.1	mg/kg dry wt		9520.4			3	35
Beryllium	< 1.00	5.01	"		< 1.00				35
Calcium	2537.8	250	"		2461.4			3	35
Iron	43182	250	"		42074			3	35
Magnesium	4639.0	250	"		4511.2			3	35
Manganese	5524.3	5.01	"		5331.2			4	35
Silica (SiO2)	5733.1	1000	"		5856.9			2	35
Zinc	5431.7	20.0	"		5374.4			1	35
Strontium	29.629	10.0	"		28.929			2	35
Matrix Spike (1612053-MS1)		Dilution Factor: 1	Source: C161105-01			Prepared: 12/09/16 Analyzed: 12/15/16			
Aluminum	10080	50.1	mg/kg dry wt	200	9520.4	279	70-130		
Beryllium	21.170	5.01	"	20.0	< 1.00	106	70-130		
Calcium	2539.0	251	"	100	2461.4	77	70-130		
Iron	43099	251	"	301	42074	341	70-130		
Magnesium	4904.7	251	"	200	4511.2	196	70-130		
Manganese	5516.7	5.01	"	20.0	5331.2	926	70-130		
Silica (SiO2)	6911.6	1000	"	200	5856.9	526	70-130		
Zinc	5197.1	20.0	"	20.0	5374.4	NR	70-130		
Strontium	50.184	10.0	"	20.0	28.929	106	70-130		
Matrix Spike (1612053-MS3)		Dilution Factor: 1	Source: C161105-02			Prepared: 12/09/16 Analyzed: 12/15/16			
Aluminum	8909.3	49.5	mg/kg dry wt	198	8698.8	106	70-130		
Beryllium	21.240	4.95	"	19.8	< 0.990	107	70-130		
Calcium	3094.0	247	"	99.0	3110.6	NR	70-130		
Iron	27066	247	"	297	27584	NR	70-130		
Magnesium	5246.5	247	"	198	5043.7	103	70-130		
Manganese	2374.4	4.95	"	19.8	2362.5	60	70-130		
Silica (SiO2)	5488.7	990	"	198	4797.8	349	70-130		
Zinc	549.11	19.8	"	19.8	528.65	103	70-130		
Strontium	60.777	9.90	"	19.8	40.738	101	70-130		

Project Name: Bonita Peak_Soil_NOV_2016_A119

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Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 1612053 - 200.2 - TR Metals		<i>Solid (dry wt basis)</i>						ICPOE - PE Optima	
Reference (1612053-SRM1)		Dilution Factor: 5						Prepared: 12/09/16 Analyzed: 12/15/16	
Aluminum	291.33	48.9	mg/kg dry wt	309		94	63-137		
Beryllium	18.112	4.89	"	18.8		96	82-118		
Calcium	169080	244	"	184000		92	78-122		
Iron	18672	244	"	21000		89	80-120		
Magnesium	97236	244	"	113000		86	80-120		
Manganese	199.18	4.89	"	201		99	80-120		
Zinc	152.08	19.5	"	175		87	73-127		
Batch 1612054 - 200.2 - TR Metals		<i>Solid (dry wt basis)</i>						ICPOE - PE Optima	
Method Blank (1612054-BLK1)		Dilution Factor: 1						Prepared: 12/09/16 Analyzed: 12/15/16	
Aluminum	< 2.00	5.00	mg/kg dry wt						
Beryllium	< 0.100	0.500	"						
Calcium	< 10.0	25.0	"						
Iron	< 10.0	25.0	"						
Magnesium	< 10.0	25.0	"						
Manganese	< 0.200	0.500	"						
Silica (SiO2)	< 25.0	100	"						
Zinc	< 1.00	2.00	"						
Strontium	< 0.200	1.00	"						
Duplicate (1612054-DUP1)		Dilution Factor: 1	Source: C161105-12			Prepared: 12/09/16 Analyzed: 12/15/16			
Aluminum	14145	49.9	mg/kg dry wt	13882		2	35		
Beryllium	< 0.997	4.99	"	< 0.997					
Calcium	1521.5	249	"	1491.6		2	35		
Iron	35629	249	"	35010		2	35		
Magnesium	5616.6	249	"	5473.6		3	35		
Manganese	2775.3	4.99	"	2708.1		2	35		
Silica (SiO2)	7189.8	997	"	7142.8		0.7	35		
Zinc	388.92	19.9	"	380.15		2	35		
Strontium	12.558	9.97	"	12.056		4	35		

Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 1612054 - 200.2 - TR Metals		<i>Solid (dry wt basis)</i>						ICPOE - PE Optima	
Matrix Spike (1612054-MS1)		Dilution Factor: 1		Source: C161105-12			Prepared: 12/09/16 Analyzed: 12/15/16		
Aluminum	14854	49.7	mg/kg dry wt	199	13882	489	70-130		
Beryllium	20.577	4.97	"	19.9	< 0.993	104	70-130		
Calcium	1659.1	248	"	99.3	1491.6	169	70-130		
Iron	36144	248	"	298	35010	381	70-130		
Magnesium	5943.6	248	"	199	5473.6	237	70-130		
Manganese	2780.2	4.97	"	19.9	2708.1	363	70-130		
Silica (SiO2)	8175.5	993	"	199	7142.8	520	70-130		
Zinc	423.17	19.9	"	19.9	380.15	217	70-130		
Strontium	32.650	9.93	"	19.9	12.056	104	70-130		
Reference (1612054-SRM1)		Dilution Factor: 5		Prepared: 12/09/16 Analyzed: 12/15/16					
Aluminum	293.89	48.8	mg/kg dry wt	309	95	63-137			
Beryllium	18.229	4.88	"	18.8	97	82-118			
Calcium	172530	244	"	184000	94	78-122			
Iron	17955	244	"	21000	86	80-120			
Magnesium	100240	244	"	113000	89	80-120			
Manganese	202.16	4.88	"	201	101	80-120			
Zinc	142.61	19.5	"	175	81	73-127			
Batch 1612079 - 1612054		<i>Solid (dry wt basis)</i>						ICPOE - PE Optima	
Serial Dilution (1612079-SRD1)		Dilution Factor: 5		Source: C161105-01			Prepared: 12/09/16 Analyzed: 12/15/16		
Aluminum	9388.7	252	mg/kg dry wt	9520.4		1	10		
Beryllium	< 5.03	25.2	"	< 1.01			10		
Calcium	2444.9	1260	"	2461.4		0.7	10		
Iron	41739	1260	"	42074		0.8	10		
Magnesium	4432.6	1260	"	4511.2		2	10		
Manganese	5390.3	25.2	"	5331.2		1	10		
Silica (SiO2)	5751.0	5030	"	5856.9		2	10		
Zinc	5330.6	101	"	5374.4		0.8	10		
Strontium	28.505	50.3	"	28.929		1	10		

Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 1612079 - 1612054		<i>Solid (dry wt basis)</i>						ICPOE - PE Optima	
Serial Dilution (1612079-SRD2)		Dilution Factor: 5		Source: C161105-12		Prepared: 12/09/16 Analyzed: 12/15/16			
Aluminum	13831	249	mg/kg dry wt		13882			0.4	10
Beryllium	< 4.98	24.9	"		< 1.00				10
Calcium	1505.7	1250	"		1491.6			0.9	10
Iron	34887	1250	"		35010			0.3	10
Magnesium	5425.7	1250	"		5473.6			0.9	10
Manganese	2707.6	24.9	"		2708.1			0.02	10
Silica (SiO ₂)	7049.4	4980	"		7142.8			1	10
Zinc	372.21	99.6	"		380.15			2	10
Strontium	11.744	49.8	"		12.056			3	10

NOTE: %R = % Recovery, %R limits do not apply when sample levels exceed 4x the spike level.
 RPD = Relative Percent Difference, %D = % Difference, DL = Detection Limit for QC sample

Project Name: Bonita Peak_Soil_NOV_2016_A119

Certificate of Analysis

TDF #:

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Mercury only (Total) by EPA 245.1 / 7470A Method - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
NIC MA-3000									
Batch 1611048 - No Lab Prep Reqd							<i>Soil</i>		
							NIC MA-3000		
Method Blank (1611048-BLK1)			Dilution Factor: 1				Prepared & Analyzed: 11/08/16		
Mercury	< 0.010	0.020	mg/kg dry wt						
Duplicate (1611048-DUP1)		Dilution Factor: 1		Source: C161105-01			Prepared & Analyzed: 11/08/16		
Mercury	4.540	0.020	mg/kg dry wt		4.441			2	35
Duplicate (1611048-DUP2)		Dilution Factor: 1		Source: C161105-08			Prepared & Analyzed: 11/08/16		
Mercury	0.2126	0.020	mg/kg dry wt		0.1640			26	35
Matrix Spike (1611048-MS1)		Dilution Factor: 1		Source: C161105-01			Prepared & Analyzed: 11/08/16		
Mercury	5.075	0.020	mg/kg dry wt	0.200	4.441	317	80-120		
Matrix Spike (1611048-MS2)		Dilution Factor: 1		Source: C161105-08			Prepared & Analyzed: 11/08/16		
Mercury	0.3166	0.020	mg/kg dry wt	0.199	0.1640	77	80-120		
Matrix Spike Dup (1611048-MSD1)		Dilution Factor: 1		Source: C161105-01			Prepared & Analyzed: 11/08/16		
Mercury	4.620	0.020	mg/kg dry wt	0.200	4.441	90	80-120	9	20
Matrix Spike Dup (1611048-MSD2)		Dilution Factor: 1		Source: C161105-08			Prepared & Analyzed: 11/08/16		
Mercury	0.3349	0.020	mg/kg dry wt	0.198	0.1640	86	80-120	6	20
Reference (1611048-SRM1)		Dilution Factor: 1				Prepared & Analyzed: 11/08/16			
Mercury	7.794	0.245	mg/kg dry wt	6.45		121	75-125		

NOTE: %R = % Recovery, %R limits do not apply when sample levels exceed 4x the spike level.
 RPD = Relative Percent Difference, %D = % Difference, DL = Detection Limit for QC sample

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TechLaw Inc., ESAT Region 8

INORGANIC ANALYSES DATA SHEET

Initial and Continuing Calibration Blanks

Analytical Method: 7473Analysis Name: TM_Mercury 7473Instrument: NIC MA-3000Work Order: Nu C161105Analytical Sequence: 1611049 TotalConcentration Units: mg/kg dry wt

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL	
		1	2	3	4	1611048-BLK1	NA		
Mercury	0.19	2.08	1.70	1.32	1.70	1611048-BLK1	NA	0.02	
		5	6	7	8				
						1.32	NA		

TechLaw Inc., ESAT Region 8

INORGANIC ANALYSES DATA SHEET

Initial and Continuing Calibration Blanks

Analytical Method: EPA 200.2/200.7Analysis Name: ICPOE Tot. Rec. MetalsInstrument: ICPOE - PE OptimaWork Order: Nu C161105Analytical Sequence: 1612079 Total RecoverableConcentration Units: mg/kg dry wt

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
		1	2	3	4	1612053-BLK1	NA	
Aluminum	1.06	1.24	1.84	-0.64	1.33	0.35	NA	5.00
		5	6	7	8			
	1.06	1.24	1.84	-0.64	1.33	-0.18	NA	5.00
		5	6	7	8			
Beryllium	0.00	0.00	-0.02	-0.04	-0.07	-0.09	NA	0.50
		5	6	7	8			
	0.00	0.00	-0.02	-0.04	-0.07	-0.04	NA	0.50
		5	6	7	8			
Calcium	3.54	3.21	3.46	2.46	2.54	4.97	NA	25.00
		5	6	7	8			
	3.54	3.21	3.46	2.46	2.54	4.77	NA	25.00
		5	6	7	8			
Iron	3.47	26.95	47.18	33.89	31.72	39.32	NA	25.00
		5	6	7	8			
	3.47	26.95	47.18	33.89	31.72	18.89	NA	25.00
		5	6	7	8			

TechLaw Inc., ESAT Region 8

INORGANIC ANALYSES DATA SHEET

Initial and Continuing Calibration Blanks

Analytical Method: EPA 200.2/200.7Analysis Name: ICPOE Tot. Rec. MetalsInstrument: ICPOE - PE OptimaWork Order: Nu C161105Analytical Sequence: 1612079 Total RecoverableConcentration Units: mg/kg dry wt

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Magnesium	-0.44	1	2	3	4	1612054-BLK1		25.00
		0.57	0.20	0.40	0.74	-0.97	NA	
		5	6	7	8		25.00	
						0.79		NA
	-0.44	1	2	3	4	1612053-BLK1		25.00
		0.57	0.20	0.40	0.74	0.79	NA	
		5	6	7	8		25.00	
						0.07		NA
Manganese	0.02	1	2	3	4	1612054-BLK1		0.50
		0.08	0.07	0.09	0.10	0.07	NA	
		5	6	7	8		0.50	
						0.06		NA
	0.02	1	2	3	4	1612053-BLK1		0.50
		0.08	0.07	0.09	0.10	0.06	NA	
		5	6	7	8		0.50	
						-3.16		NA
Silica (SiO ₂)	-1.77	1	2	3	4	1612053-BLK1		100.00
		0.90	2.45	4.54	4.48	-3.16	NA	
		5	6	7	8		100.00	
						0.70		NA
	-1.77	1	2	3	4	1612054-BLK1		100.00
		0.90	2.45	4.54	4.48	0.70	NA	
		5	6	7	8		100.00	
						0.52		NA
Zinc	-0.48	1	2	3	4	1612054-BLK1		2.00
		1.34	0.60	0.24	0.33	0.52	NA	
		5	6	7	8		2.00	
						-0.28		NA
	-0.48	1	2	3	4	1612053-BLK1		2.00
		1.34	0.60	0.24	0.33	-0.28	NA	
		5	6	7	8		2.00	

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INORGANIC ANALYSES DATA SHEET

Initial and Continuing Calibration Blanks

Analytical Method: EPA 200.2/200.7Analysis Name: ICPOE Tot. Rec. MetalsInstrument: ICPOE - PE OptimaWork Order: Nu C161105Analytical Sequence: 1612079 **Total Recoverable**Concentration Units: mg/kg dry wt

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
		1	2	3	4	1612054-BLK1	NA	
Strontium	0.00	0.00	0.02	0.01	0.00	1612054-BLK1	NA	1.00
		5	6	7	8			
	0.00	0.00	0.02	0.01	0.00	1612053-BLK1	NA	1.00
		5	6	7	8			

TechLaw Inc., ESAT Region 8

INORGANIC ANALYSES DATA SHEET

Initial and Continuing Calibration Blanks

Analytical Method: EPA 200.2 / 200.8

Analysis Name:

ICPMS Tot. Rec. MetalsInstrument: ICPMS-PE DRC-II

Work Order: Nu

C161105Analytical Sequence: 1612080 Total Recoverable

Concentration Units:

ug/kg dry wt

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Chromium	-0.04	1	2	3	4	NA	1612053-BLK2	200.00
		-0.08	-0.05	-0.04	-0.03	NA	0.21	
		5	6	7	8			
						NA	0.22	
	-0.04	1	2	3	4		200.00	
		-0.08	-0.05	-0.04	-0.03			
		5	6	7	8			
						NA		0.27
Nickel	0.02	1	2	3	4		100.00	
		0.02	0.01	0.01	0.02			
		5	6	7	8			
						NA		0.27
	0.02	1	2	3	4		100.00	
		0.02	0.01	0.01	0.02			
		5	6	7	8			
						NA		0.06
Copper	0.01	1	2	3	4		100.00	
		0.01	0.01	0.00	0.02			
		5	6	7	8			
						NA		0.06
	0.01	1	2	3	4		100.00	
		0.01	0.01	0.00	0.02			
		5	6	7	8			
						NA		-0.31
Arsenic	-0.01	1	2	3	4		200.00	
		-0.07	-0.18	-0.10	0.04			
		5	6	7	8			
						NA		0.01
	-0.01	1	2	3	4		200.00	
		-0.07	-0.18	-0.10	0.04			
		5	6	7	8			

TechLaw Inc., ESAT Region 8

INORGANIC ANALYSES DATA SHEET

Initial and Continuing Calibration Blanks

Analytical Method: EPA 200.2 / 200.8

Analysis Name:

ICPMS Tot. Rec. MetalsInstrument: ICPMS-PE DRC-II

Work Order: Nu

C161105Analytical Sequence: 1612080 Total Recoverable

Concentration Units:

ug/kg dry wt

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL	
Selenium	0.06	1	2	3	4	NA	1612054-BLK2	200.00	
		-0.03	0.04	-0.05	0.15	NA	-0.04		
		5	6	7	8				
	0.06	1	2	3	4	NA	1612053-BLK2	200.00	
		-0.03	0.04	-0.05	0.15	NA	0.07		
		5	6	7	8				
Silver	0.01	1	2	3	4	NA	1612053-BLK2	100.00	
		0.01	0.01	0.01	0.01	NA	0.01		
		5	6	7	8				
	0.01	1	2	3	4	NA	1612054-BLK2	100.00	
		0.01	0.01	0.01	0.01	NA	0.00		
		5	6	7	8				
Cadmium	0.00	1	2	3	4	NA	1612053-BLK2	20.00	
		0.00	0.00	0.00	0.00	NA	-0.01		
		5	6	7	8				
	0.00	1	2	3	4	NA	1612054-BLK2	20.00	
		0.00	0.00	0.00	0.00	NA	-0.01		
		5	6	7	8				
Antimony	0.16	1	2	3	4	NA	1612053-BLK2	100.00	
		0.22	0.21	0.22	0.21	NA	0.03		
		5	6	7	8				
	0.16	1	2	3	4	NA	1612054-BLK2	100.00	
		0.22	0.21	0.22	0.21	NA	0.07		
		5	6	7	8				

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INORGANIC ANALYSES DATA SHEET

Initial and Continuing Calibration Blanks

Analytical Method: EPA 200.2 / 200.8Analysis Name: ICPMS Tot. Rec. MetalsInstrument: ICPMS-PE DRC-IIWork Order: Nu C161105Analytical Sequence: 1612080 **Total Recoverable**Concentration Units: ug/kg dry wt

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Thallium	0.00	1	2	3	4	NA	1612053-BLK2	200.00
		0.28	0.05	0.15	0.06	NA	-0.10	
		5	6	7	8			
	0.00	1	2	3	4	NA	1612054-BLK2	200.00
		0.28	0.05	0.15	0.06	NA	-0.07	
		5	6	7	8			
Lead	0.00	1	2	3	4	NA	1612053-BLK2	20.00
		0.01	0.00	0.00	0.02	NA	0.01	
		5	6	7	8			
	0.00	1	2	3	4	NA	1612054-BLK2	20.00
		0.01	0.00	0.00	0.02	NA	0.01	
		5	6	7	8			

TechLaw, Inc. - ESAT Region 8**Initial and Continuing Calibration Verification Results****NIC MA-3000**

Method: 7473

Analysis Name: TM_Mercury 7473

Sequence: 1611049

Work Order: C161105

Units: mg/kg dry wt

Total Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Mercury	100	98.70	98.7	1			2			3		
				100	114.9	114.9	100	115.3	115.3	100	110.0	110.0
				4			5			6		
				100	107.4	107.4						
				7			8			9		

Metals - ICV & CCV %R Criteria = 90 - 110%, Classical Chemistry %R Criteria - ICV = 90 - 110%R, CCV = 80 - 120%R.

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TechLaw, Inc. - ESAT Region 8**Initial and Continuing Calibration Verification Results****ICPOE - PE Optima**

Method: EPA 200.2/200.7

Analysis Name: ICPOE Tot. Rec. Metals

Sequence: 1612079

Work Order: C161105

Units: mg/kg dry wt

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Aluminum	12500	12742	101.9	1			2			3		
				12500	12795	102.4	12500	12715	101.7	12500	12639	101.1
				4			5			6		
				12500	12508	100.1						
				7			8			9		
Beryllium	500	513.46	102.7	1			2			3		
				500	502.63	100.5	500	500.53	100.1	500	501.39	100.3
				4			5			6		
				500	496.78	99.4						
				7			8			9		
Calcium	12500	12813	102.5	1			2			3		
				12500	12735	101.9	12500	12716	101.7	12500	12617	100.9
				4			5			6		
				12500	12618	100.9						
				7			8			9		
Iron	12500	12962	103.7	1			2			3		
				12500	13000	104.0	12500	13142	105.1	12500	12867	102.9
				4			5			6		
				12500	12788	102.3						
				7			8			9		
Magnesium	12500	12762	102.1	1			2			3		
				12500	12855	102.8	12500	12780	102.2	12500	12682	101.5
				4			5			6		
				12500	12581	100.6						
				7			8			9		
Manganese	1000	1030.4	103.0	1			2			3		
				1000	1019.9	102.0	1000	1022.8	102.3	1000	1017.6	101.8
				4			5			6		
				1000	1013.0	101.3						
				7			8			9		

TechLaw, Inc. - ESAT Region 8																	
Initial and Continuing Calibration Verification Results																	
ICPOE - PE Optima			Method: EPA 200.2/200.7			Analysis Name: ICPOE Tot. Rec. Metals											
Sequence: 1612079			Work Order: C161105			Units: mg/kg dry wt											
Total Recoverable Analyte																	
Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)														
True			True	Found	%R	True	Found	%R	True	Found	%R						
Silica (SiO ₂)	10000	10140	101.4	1			2			3							
				10000	9879.2	98.8	10000	9879.4	98.8	10000	9911.2	99.1					
				4			5			6							
				10000	9808.1	98.1											
				7			8			9							
Strontium	500	508.79	101.8	1			2			3							
				500	514.34	102.9	500	504.15	100.8	500	504.58	100.9					
				4			5			6							
				500	494.01	98.8											
				7			8			9							
Zinc	2500	2615.0	104.6	1			2			3							
				2500	2548.6	101.9	2500	2569.2	102.8	2500	2534.7	101.4					
				4			5			6							
				2500	2533.3	101.3											
				7			8			9							

Metals - ICV & CCV %R Criteria = 90 - 110%, Classical Chemistry %R Criteria - ICV = 90 - 110%R, CCV = 80 - 120%R.

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TechLaw, Inc. - ESAT Region 8**Initial and Continuing Calibration Verification Results**

ICPMS-PE DRC-II

Method: EPA 200.2 / 200.8

Analysis Name: ICPMS Tot. Rec. Metals

Sequence: 1612080

Work Order: C161105

Units: ug/kg dry wt

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Antimony	50.0	49.5	99.0	1			2			3		
				50.0	48.4	96.8	50.0	47.4	94.8	50.0	49.0	98.0
				4			5			6		
				50.0	48.1	96.2						
				7			8			9		
Arsenic	50.0	47.8	95.6	1			2			3		
				50.0	48.9	97.8	50.0	47.7	95.4	50.0	49.4	98.8
				4			5			6		
				50.0	48.7	97.4						
				7			8			9		
Cadmium	50.0	48.8	97.6	1			2			3		
				50.0	48.7	97.4	50.0	47.8	95.6	50.0	48.9	97.8
				4			5			6		
				50.0	48.8	97.6						
				7			8			9		
Chromium	50.0	47.8	95.6	1			2			3		
				50.0	48.4	96.8	50.0	47.6	95.2	50.0	48.5	97.0
				4			5			6		
				50.0	47.2	94.4						
				7			8			9		
Copper	50.0	50.1	100.2	1			2			3		
				50.0	50.4	100.8	50.0	48.9	97.8	50.0	50.3	100.6
				4			5			6		
				50.0	49.3	98.6						
				7			8			9		
Lead	50.0	48.3	96.6	1			2			3		
				50.0	48.7	97.4	50.0	48.9	97.8	50.0	49.1	98.2
				4			5			6		
				50.0	48.8	97.6						
				7			8			9		

TechLaw, Inc. - ESAT Region 8**Initial and Continuing Calibration Verification Results**

ICPMS-PE DRC-II

Method: EPA 200.2 / 200.8

Analysis Name: ICPMS Tot. Rec. Metals

Sequence: 1612080

Work Order: C161105

Units: ug/kg dry wt

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Nickel	50.0	49.3	98.6	1			2			3		
				50.0	50.0	100.0	50.0	48.1	96.2	50.0	49.1	98.2
				4			5			6		
				50.0	49.0	98.0						
				7			8			9		
Selenium	50.0	48.3	96.6	1			2			3		
				50.0	50.6	101.2	50.0	48.4	96.8	50.0	52.0	104.0
				4			5			6		
				50.0	49.2	98.4						
				7			8			9		
Silver	50.0	50.6	101.2	1			2			3		
				50.0	49.7	99.4	50.0	48.2	96.4	50.0	49.8	99.6
				4			5			6		
				50.0	49.5	99.0						
				7			8			9		
Thallium	50.0	48.8	97.6	1			2			3		
				50.0	49.9	99.8	50.0	49.7	99.4	50.0	50.0	100.0
				4			5			6		
				50.0	49.8	99.6						
				7			8			9		

Metals - ICV & CCV %R Criteria = 90 - 110%, Classical Chemistry %R Criteria - ICV = 90 - 110%R, CCV = 80 - 120%R.

TechLaw, Inc. - ESAT Region 8
ICP Interference Check Sample
ICPMS-PE DRC-II

<u>Analyte</u>	<u>Check Sample</u>	<u>Result*</u>	<u>Units</u>	<u>True</u>	<u>%R</u>	<u>PQL</u>
Sequence: 1612080	Analysis: ICPMS Tot. Rec. Metals					
Antimony	IFA1	0.1	ug/L			1.0
	IFB1	0.1	ug/L			1.0
Arsenic	IFA1	0.1	ug/L			2.0
	IFB1	19.2	ug/L	20	96	2.0
Cadmium	IFA1	0.0	ug/L			0.2
	IFB1	20.5	ug/L	20	103	0.2
Chromium	IFA1	0.3	ug/L			2.0
	IFB1	20.7	ug/L	20	103	2.0
Copper	IFA1	0.6	ug/L			1.0
	IFB1	21.6	ug/L	20	108	1.0
Lead	IFA1	0.0	ug/L			0.2
	IFB1	0.0	ug/L			0.2
Nickel	IFA1	0.0	ug/L			1.0
	IFB1	20.4	ug/L	20	102	1.0
Selenium	IFA1	-0.1	ug/L			2.0
	IFB1	-0.2	ug/L			2.0
Silver	IFA1	0.0	ug/L			1.0
	IFB1	20.3	ug/L	20	102	1.0
Thallium	IFA1	-0.1	ug/L			2.0
	IFB1	-0.1	ug/L			2.0

*Criteria = 80-120%R of True Value or +/- PQL

See raw data for complete analyte list and results.

TechLaw, Inc. - ESAT Region 8

ICP Interference Check Sample

ICPOE - PE Optima

<u>Analyte</u>	<u>Check Sample</u>	<u>Result*</u>	<u>Units</u>	<u>True</u>	<u>%R</u>	<u>PQL</u>
Sequence: 1612079	Analysis: ICPOE Tot. Rec. Metals					
Aluminum	IFA1	61,083.9	ug/L	60,000	102	50.0
	IFB1	60,975.1	ug/L	60,000	102	50.0
Beryllium	IFA1	-0.6	ug/L			5.00
	IFB1	99.2	ug/L	100	99	5.00
Calcium	IFA1	296,102.3	ug/L	300,000	99	250
	IFB1	300,430.8	ug/L	300,000	100	250
Iron	IFA1	232,856.0	ug/L	250,000	93	250
	IFB1	232,519.3	ug/L	250,000	93	250
Magnesium	IFA1	141,567.9	ug/L	150,000	94	250
	IFB1	141,159.0	ug/L	150,000	94	250
Manganese	IFA1	1.0	ug/L			5.00
	IFB1	201.7	ug/L	200	101	5.00
Silica (SiO2)	IFA1	9.7	ug/L			1000
	IFB1	536.0	ug/L	500	107	1000
Strontium	IFA1	-6.2	ug/L			10.0
	IFB1	990.1	ug/L	1,000	99	10.0
Zinc	IFA1	-4.9	ug/L			20.0
	IFB1	288.3	ug/L	300	96	20.0

*Criteria = 80-120%R of True Value or +/- PQL

See raw data for complete analyte list and results.

TechLaw, Inc. - ESAT Region 8
Detection Limit (PQL) Standard
NIC MA-3000

Mercury only (Total) by EPA 245.1 / 7470A Method

Sequence: 1611049

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%R</u>	<u>Units</u>
Mercury	10.0	12.64	126	ug/L

Recovery Control Limits: 70-130% except Pb, Tl, Sb, & Hg at 50-150%. No limits for Al, Ca, Fe, K, Mg & Na.

TechLaw, Inc. - ESAT Region 8
Detection Limit (PQL) Standard
ICPMS-PE DRC-II

Metals (Total Recov) by EPA 200/7000 Series Methods

Sequence: 1612080

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%R</u>	<u>Units</u>
Antimony	1.00	1.1	109	ug/L
Arsenic	2.00	1.7	87	ug/L
Cadmium	0.200	0.2	110	ug/L
Chromium	2.00	1.9	94	ug/L
Copper	1.00	1.1	106	ug/L
Lead	0.200	0.2	96	ug/L
Nickel	1.00	1.2	116	ug/L
Selenium	2.00	1.7	84	ug/L
Silver	1.00	1.0	101	ug/L
Thallium	1.00	0.9	86	ug/L

Recovery Control Limits: 70-130% except Pb, Tl, Sb, & Hg at 50-150%. No limits for Al, Ca, Fe, K, Mg & Na.

TechLaw, Inc. - ESAT Region 8
Detection Limit (PQL) Standard
ICPOE - PE Optima

Metals (Total Recov) by EPA 200/7000 Series Methods

Sequence: 1612079

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%R</u>	<u>Units</u>
Aluminum	100	104.73	105	ug/L
Beryllium	5.00	5.0319	101	ug/L
Calcium	250	258.95	104	ug/L
Iron	100	94.712	95	ug/L
Magnesium	1000	1003.3	100	ug/L
Manganese	10.0	10.560	106	ug/L
Silica (SiO2)	250	249.65	100	ug/L
Strontium	10.0	10.330	103	ug/L
Zinc	50.0	52.163	104	ug/L

Recovery Control Limits: 70-130% except Pb, Tl, Sb, & Hg at 50-150%. No limits for Al, Ca, Fe, K, Mg & Na.

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: 7473

Total

Sequence ID#: 1611049

Instrument ID #: NIC MA-3000

Soil

LSR #: A-119

Analysis ID	Sample Name	Analysis Date	Analysis Time
1611049-ICV1	Initial Cal Check	11/08/16	12:00
1611049-ICB1	Initial Cal Blank	11/08/16	12:00
1611049-CRL1	Instrument RL Check	11/08/16	12:00
1611048-BLK1	Blank	11/08/16	12:00
1611048-SRM1	Reference	11/08/16	12:00
C161105-01	A34	11/08/16	12:00
1611048-DUP1	Duplicate	11/08/16	12:00
1611048-MS1	Matrix Spike	11/08/16	12:00
1611048-MSD1	Matrix Spike Dup	11/08/16	12:00
C161105-08	CC26	11/08/16	12:00
1611049-CCV1	Calibration Check	11/08/16	12:00
1611049-CCB1	Calibration Blank	11/08/16	12:00
1611048-DUP2	Duplicate	11/08/16	12:00
1611048-MS2	Matrix Spike	11/08/16	12:00
1611048-MSD2	Matrix Spike Dup	11/08/16	12:00
C161105-02	A41A	11/08/16	12:00
C161105-03	A68	11/08/16	12:00
C161105-04	CC18B	11/08/16	12:00
C161105-05	CC21D	11/08/16	12:00
C161105-06	CC24C	11/08/16	12:00
C161105-07	CC25	11/08/16	12:00
C161105-09	CC38	11/08/16	12:00
1611049-CCV2	Calibration Check	11/08/16	12:00
1611049-CCB2	Calibration Blank	11/08/16	12:00
C161105-10	CC38D	11/08/16	12:00
C161105-11	EG2	11/08/16	12:00
C161105-12	EG2A	11/08/16	12:00
C161105-13	EG3A	11/08/16	12:00
C161105-14	EG5	11/08/16	12:00
C161105-15	M12	11/08/16	12:00
C161105-16	M14	11/08/16	12:00
C161105-17	M24D	11/08/16	12:00
C161105-18	M25	11/08/16	12:00
C161105-19	M26B	11/08/16	12:00
1611049-CCV3	Calibration Check	11/08/16	12:00
1611049-CCB3	Calibration Blank	11/08/16	12:00
C161105-20	M27	11/08/16	12:00
C161105-21	PWMLP1	11/08/16	12:00

Project Name: Bonita Peak_Soil_NOV_2016_A119

Certificate of Analysis

TDF #:

A-119

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: 7473

Total

Sequence ID#: 1611049

Instrument ID #: NIC MA-3000

Soil

LSR #: A-119

Analysis ID	Sample Name	Analysis Date	Analysis Time
1611049-CCV4	Calibration Check	11/08/16	12:00
1611049-CCB4	Calibration Blank	11/08/16	12:00

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: EPA 200.2/200.7

Total Recoverable

Sequence ID#: 1612079

Instrument ID #: ICPOE - PE Optima

Solid (dry wt basis)

LSR #: A-119

Analysis ID	Sample Name	Analysis Date	Analysis Time
1612079-ICV1	Initial Cal Check	12/15/16	07:56
1612079-SCV1	Secondary Cal Check	12/15/16	08:00
1612079-ICB1	Initial Cal Blank	12/15/16	08:03
1612079-CRL1	Instrument RL Check	12/15/16	08:06
1612079-IFA1	Interference Check A	12/15/16	08:08
1612079-IFB1	Interference Check B	12/15/16	08:12
1612053-BLK1	Blank	12/15/16	08:16
1612053-SRM1	Reference	12/15/16	08:19
C161105-01	A34	12/15/16	08:22
1612053-DUP1	Duplicate	12/15/16	08:24
1612079-SRD1	Serial Dilution	12/15/16	08:28
1612053-MS1	Matrix Spike	12/15/16	08:30
C161105-02	A41A	12/15/16	08:33
1612053-MS3	Matrix Spike	12/15/16	08:37
C161105-03	A68	12/15/16	08:40
1612079-CCV1	Calibration Check	12/15/16	08:46
1612079-CCB1	Calibration Blank	12/15/16	08:49
C161105-04	CC18B	12/15/16	08:52
C161105-05	CC21D	12/15/16	08:55
C161105-06	CC24C	12/15/16	08:58
C161105-07	CC25	12/15/16	09:01
C161105-08	CC26	12/15/16	09:04
C161105-09	CC38	12/15/16	09:06
C161105-10	CC38D	12/15/16	09:09
C161105-11	EG2	12/15/16	09:12
1612079-CCV2	Calibration Check	12/15/16	09:18
1612079-CCB2	Calibration Blank	12/15/16	09:21
1612054-BLK1	Blank	12/15/16	09:28
1612054-SRM1	Reference	12/15/16	09:31
C161105-12	EG2A	12/15/16	09:34
1612054-DUP1	Duplicate	12/15/16	09:36
1612079-SRD2	Serial Dilution	12/15/16	09:39
1612054-MS1	Matrix Spike	12/15/16	09:42
C161105-13	EG3A	12/15/16	09:45
C161105-14	EG5	12/15/16	09:47
C161105-15	M12	12/15/16	09:50
1612079-CCV3	Calibration Check	12/15/16	09:56
1612079-CCB3	Calibration Blank	12/15/16	09:59

Project Name: Bonita Peak_Soil_NOV_2016_A119

Certificate of Analysis

TDF #:

A-119

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: EPA 200.2/200.7

Total Recoverable

Sequence ID#: 1612079

Instrument ID #: ICPOE - PE Optima

Solid (dry wt basis)

LSR #: A-119

Analysis ID	Sample Name	Analysis Date	Analysis Time
C161105-16	M14	12/15/16	10:02
C161105-17	M24D	12/15/16	10:05
C161105-18	M25	12/15/16	10:08
C161105-19	M26B	12/15/16	10:11
C161105-20	M27	12/15/16	10:14
C161105-21	PWMLP1	12/15/16	10:17
1612079-CCV4	Calibration Check	12/15/16	10:23
1612079-CCB4	Calibration Blank	12/15/16	10:26

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: EPA 200.2 / 200.8

Total Recoverable

Sequence ID#: 1612080

Instrument ID #: ICPMS-PE DRC-II

Solid (dry wt basis)

LSR #: A-119

Analysis ID	Sample Name	Analysis Date	Analysis Time
1612080-ICV1	Initial Cal Check	12/15/16	08:52
1612080-SCV1	Secondary Cal Check	12/15/16	08:55
1612080-ICB1	Initial Cal Blank	12/15/16	08:59
1612080-CRL1	Instrument RL Check	12/15/16	09:02
1612080-IFA1	Interference Check A	12/15/16	09:05
1612080-IFB1	Interference Check B	12/15/16	09:09
1612053-BLK2	Blank	12/15/16	09:12
C161105-01	A34	12/15/16	09:15
1612053-DUP2	Duplicate	12/15/16	09:18
1612080-SRD1	Serial Dilution	12/15/16	09:21
1612053-SRM2	Reference	12/15/16	09:24
1612053-MS2	Matrix Spike	12/15/16	09:27
C161105-02	A41A	12/15/16	09:30
1612053-MS4	Matrix Spike	12/15/16	09:34
C161105-03	A68	12/15/16	09:37
1612080-CCV1	Calibration Check	12/15/16	09:43
1612080-CCB1	Calibration Blank	12/15/16	09:46
C161105-04	CC18B	12/15/16	09:49
C161105-05	CC21D	12/15/16	09:53
C161105-06	CC24C	12/15/16	09:56
C161105-07	CC25	12/15/16	09:59
C161105-08	CC26	12/15/16	10:02
C161105-09	CC38	12/15/16	10:05
C161105-10	CC38D	12/15/16	10:08
C161105-11	EG2	12/15/16	10:11
1612080-CCV2	Calibration Check	12/15/16	10:17
1612080-CCB2	Calibration Blank	12/15/16	10:20
1612054-BLK2	Blank	12/15/16	10:25
C161105-12	EG2A	12/15/16	10:28
1612054-DUP2	Duplicate	12/15/16	10:31
1612080-SRD2	Serial Dilution	12/15/16	10:34
1612054-SRM2	Reference	12/15/16	10:37
1612054-MS2	Matrix Spike	12/15/16	10:40
C161105-13	EG3A	12/15/16	10:44
C161105-14	EG5	12/15/16	10:47
C161105-15	M12	12/15/16	10:50
1612080-CCV3	Calibration Check	12/15/16	10:56
1612080-CCB3	Calibration Blank	12/15/16	10:59

Project Name: Bonita Peak_Soil_NOV_2016_A119

Certificate of Analysis

TDF #:

A-119

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: EPA 200.2 / 200.8

Total Recoverable

Sequence ID#: 1612080

Instrument ID #: ICPMS-PE DRC-II

Solid (dry wt basis)

LSR #: A-119

Analysis ID	Sample Name	Analysis Date	Analysis Time
C161105-16	M14	12/15/16	11:03
C161105-17	M24D	12/15/16	11:06
C161105-18	M25	12/15/16	11:09
C161105-19	M26B	12/15/16	11:12
C161105-20	M27	12/15/16	11:15
C161105-21	PWMLP1	12/15/16	11:18
1612080-CCV4	Calibration Check	12/15/16	11:24
1612080-CCB4	Calibration Blank	12/15/16	11:27

C161105

ESAT Technical Direction Form

Contract No. EPW13028
EPA Region 8

Site ID: A8M5
TDF ID: A-119

Date Issued: 6/15/2016
Date Updated: 11/21/2016

Date
Closed By:

Name: Bonita Peak District 2016 Analytical Support *Nov.*

Details: The Contractor shall analyze numerous samples (surface waters, soils, sediments, toxicity) that will be collected over three sampling events at the Bonita Peak Mining District Superfund site. The three sampling events along with the approximate number of samples to be collected are as follows:

Event 1: June-July 2016 (high flow) - 300 waters (ESAT): The water samples will be analyzed for dissolved (including hardness calculation) and total recoverable metals by 200.7/200.8, alkalinity and anions as indicated below in the Analytical Information Section.

Event 2: Late-July/early-August 2016 - 162 soils (CLP), 50 soils for acid-base accounting (ESAT-sub) and 25 soils for bioaccessibility of As and Pb (ESAT-sub): The soil samples will be analyzed for metals, mercury, and SPLP as indicated per the CLP Laboratory Assignment for Case 46281. The samples that will be selected for bioaccessibility should cover the low to high concentration range of the soils analyzed previously by EPA Method 200.8 (As/Pb).

Event 3: Late-September 2016 (low flow) - 300 waters (ESAT), 250 sediments (CLP), 250 soils (CLP), 30 soils for toxicity testing (total recoverable metals - ESAT), 500 waters for toxicity testing for Ammonia (ESAT), and 64 waters for toxicity testing for total and dissolved metals, alkalinity, anions, and DOC (ESAT). The soil and sediment samples will be processed per the CLP Laboratory Assignment for Case 46282.

Site RPM is Rebecca Thomas

TO02/Subtask 02b: Inorganic Chemistry
TO02/Subtask 02i: Non-standard Analyses

Analytical Information:

MATRIX

Water Soils Vegetation Biota

WET CHEM

TSS TDS DOC Alk Chloride Sulfate Fluoride Nitrate Nitrite
Other Report as combined NO₂-NO₃

METALS

Dissolved Total Recoverable Total Hardness (Calc)
200.7: Ag Al As Ba Be B Ca Cd Co Cr Cu Fe K Mg
 Mn Mo Na Ni Pb Sb Se Sr Ti Tl V Zn SiO₂
200.8: Ag Al As Ba Be Cd Co Cr Cu Mn Mo Ni Pb Sb
 Se Th Tl U V Zn

7470/7471/747 Hg

FIBERS

PLM TEM

8/14/16

Deliverables

<i>ID</i>	<i>Description</i>	<i>Due Date</i>	<i>Submission Date</i>
1	Provide final deliverable package to Task Monitor no later than 60 days after delivery of final sample(s). (C160608)	8/15/2016	7/12/2016
2	Provide final deliverable package to Task Monitor no later than 60 days after delivery of final sample(s). (C160609)	8/15/2016	7/14/2016
3	Provide final deliverable package to Task Monitor no later than 60 days after delivery of final sample(s). (C1606010)	8/15/2016	7/13/2016
4	Provide final deliverable package to Task Monitor no later than 60 days after delivery of final sample(s). (C160701)	9/6/2016	8/4/2016
5	Provide final deliverable package to Task Monitor no later than 60 days after delivery of final sample(s). (C160706)	9/8/2016	8/2/2016

TLF-07.01

SOP: QAQ-04.00

Eff. Date: 1/17/2007

ESAT Region 8

Final Report Review Form

LIMS: C161105

Project: Boron Peak - Soil - Nov 2016

TDF: A-119

Due Date: 12-7-2016

QA/QC Review – Level III

Compare TDF to performed analysis / Ensure all analyses are complete	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Review each Analytical Data Review form noting discrepancies for narrative	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Examine each analytical sequence in LIMS using Data Entry Review application	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Generate draft report, print QC section	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Confirm presence of each analytical batch, QC samples	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Examine analytical results (Form I) for accuracy and completeness	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Check spike recoveries of LCSs, matrix spikes and post-digestion spikes	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Verify serial dilution %D and duplicate RPD for each metals batch	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

Narrative Comments

Hg samples were analyzed past hold time and were "J" flagged as estimated.

Review By:

Date: 12-20-2016

ESAT Management Review – Level IV

All analytical data and deliverable review forms present and complete	<input type="checkbox"/> Yes	<input type="checkbox"/> No
COC copy, received temp. noted, preservatives noted, signature present, holding times met	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Copy of TDF present, Analytical requirements met	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Case narrative checked for spelling, grammar, technical content and completeness	<input type="checkbox"/> Yes	<input type="checkbox"/> No
10% Validation of raw data to reported data on Form Ones	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Standard Traceability COAs and ICP / ICP-MS MDL forms present	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Final Report cover letter including DCN present	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Deficiencies noted requiring correction before delivery to EPA Project Officer	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

Manager Review Comments

None - See comment above.

Review By:

Date:

12/21/16

Corrections By:

Date: